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Objectives: To examine post-resettlement food insecurity rate and its relationship with socio-demographic and pre-resettlement characteristics among Liberian households; and assess differences in the amount of money spent on food per month by household characteristics.

Design: Semi-structured in-home interviews.

*Setting: S*outheast region of the US.

Subjects: Liberian *w*omen caring for children 12 years of age or younger (n = 33).

Results: Participants have lived in the US for 12 years on average. Food insecurity of any level was indicated in 61 % of households and child hunger or severe food insecurity was reported in 30 % of households. Food insecurity was higher among women who were aged 40 or older, had high school or less education and those making less than $1000 per month. Women who had arrived in the US older than 15 years of age were more likely to be food insecure. On average, participants spent $ 109 monthly on groceries per household member. In estimating differences, results indicated that older women, those who experienced food insecurity and did not have a car spent more money on food than their counterparts ($P \leq .10$).

Conclusions: Liberian women experience high levels of food insecurity upon resettlement. Besides poor economic conditions, pre-resettlement characteristics such as number of years in refugee camps and age upon arrival (school age vs. older than school age) were associated with food security status. These findings call for future research to

further understand what role pre-resettlement living conditions and experiences affect food choices, budgeting and thereby food security status among refugees.

LIBERIANS LIVING IN THE U.S.: AN EXAMINATION OF POST-RESETTLEMENT FOOD INSECURITY AND ASSOCIATED FACTORS

by

Danielle Nunnery

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Approved by

_____
Committee Chair

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at the University of North Carolina at Greensboro.

Committee Chair _____
Jigna M. Dharod, Ph.D.

Committee Members _____
Lauren A. Haldeman, Ph.D.

_____
Sharon D. Morrison, Ph.D.

_____
Date of Acceptance by Committee

_____
Date of Final Oral Examination

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CHAPTER I

INTRODUCTION

For nearly two decades, Liberia has experienced civil war and instability, producing several waves of refugees. After the 1989 civil conflicts began, around 750,000 Liberians fled their homes and sought asylum in neighboring coastal West African states from The Gambia to Nigeria where they lived in refugee camps for several years [(1)]. Approximately 100,000 Liberians were relocated in developed countries under the United Nations High Commissioner for Refugees resettlement program [(2)]. Liberian refugees were the second largest refugee group arriving to the U.S between 2003 and 2004 [(3)]; and current data suggests that over 39,000 Liberians live in the U.S. [(4)].

It is estimated that over 1,200 Liberians currently live in Guilford County, North Carolina [(5)]. While they represent one of the larger African refugee groups among those resettled, they are still greatly under-represented and there is a general lack of health related data on this population.

Refugee and immigrant groups may experience many changes in social, economic, and cultural environments after resettlement. Access and availability of traditional foods can also be challenging soon after arrival. Due to these challenges, refugees are often more vulnerable to food insecurity. Food insecurity is defined as, “the limited or uncertain availability of nutritionally adequate and safe foods or the inability to acquire acceptable foods in socially acceptable ways” [(6)]. There is strong evidence that

immigrants and refugee groups experience high levels of food insecurity in the U.S. In a study of over 19,000 households, 35% of mothers in immigrant households reported food insecurity compared to only 6% of non-immigrant households [7]. This trend is also observed among African refugee groups. Food insecurity was investigated among 101 West African refugees with children under the age of 5 and 53% of the sample experienced food insecurity [8]. Studies have been conducted to investigate food security among Liberian refugees after resettlement in the US. Hadley and colleagues found 85% food insecurity among of a sample of 33 Liberian refugees [9]. While there is much evidence to support that refugees and immigrants experience a higher percentage of food insecurity, it is important to investigate prevalence among specific groups pocketed in areas around the U.S. in order to understand what factors have contributed or currently contribute to their specific situations. Investigating and understanding these factors will allow us to tailor interventions and educational programs to better help immigrants and refugees successfully live in their new home country.

Liberian refugees living in Guilford County, NC are of particular interest precisely because there is a lack of any data concerning food security, pre- and peri-resettlement characteristics, and food and budget management strategies related to food insecurity.

Objectives

1) Examine the food insecurity rate of Liberian families living in Guilford County, NC and its relationship with socio-demographic and pre-resettlement characteristics.

2) Assess differences in the amount of money (household income + SNAP benefits) spent on food per month by household characteristics among Liberian families living in Guilford County, NC.
3) Identify common food budget and management strategies used by Liberian families at the household level.

CHAPTER II

LITERATURE REVIEW

Background

A refugee is defined as an individual who is unable or unwilling to return to his or her home country because of a well-grounded fear of persecution or because the person's freedom or life would be threatened [(10)]. Asylees, are similar to refugees because they too are unable or unwilling to return to their country due to fear of persecution. However they differ in regard to where they are when they file an application to be resettled. Refugees typically apply outside of the receiving country, whereas asylees have already entered the country to which they will request asylum and are not granted asylum until the application has been processed and approved [(10)]. The Office of the United Nations High Commissioner for Refugees (UNHCR) operates several programs to provide protection, assistance and a stable life to refugees, asylees and otherwise internally displaced persons. The two major programs operated by UNHCR are 1) voluntary repatriation and; 2) helping refugee families with a local integration in the country of asylum. In addition, the UNHCR also helps refugees to resettle in a developed country. Under this resettlement program, each year approximately 100,000 refugees settle in developed countries like the United States, Canada, and Australia [(2)]. According to the UNHCR'sGlobal Trend Report, in 2010 there were approximately 15.4 million refugees worldwide and of that approximately 98,000 moved to different countries in that year

under the resettlement program. Each year, the U.S. accepts about 40,000 to70, 000 refugees from different parts of the world [2].

Refugee Resettlement Programs and Food Services in the U.S.

The Displaced Persons Act of 1948 was the first piece of refugee legislation passed by the U.S. congress and was enacted in response to the overwhelming number of refugees fleeing Europe after WWII. After Vietnam, the U.S. saw the need to further define its refugee legislation with the Refugee Act of 1980 [11]. This act was put in place to standardize the resettlement services for all refugees and it most importantly created a provision for emergency admissions of refugees in addition to the provisions for regular admission flow. The Refugee Act of 1980 also authorized federal assistance for the resettlement of refugees. The Office of Refugee Resettlement report by the U.S. Department of Health and Human Services indicates that nearly 2.6 million refugees have resettled in the U.S. since 1975 [11].

The current ceiling on refugee admission into the U.S. is 80,000 persons per year. Although this is higher than all other traditional countries of resettlement, it is still 65% lower than the 1980 ceiling of 231,700 [10]. The ceiling was lowered dramatically after the September 11, 2001 terrorist attacks resulting in the lowest admissions figure seen in 2002 of 27,100 [10].

Refugee resettlement in the U.S. has typically been handled voluntarily by small, private ethnic or religious agencies and organizations, also known as “VOLAGs” [12]. These agencies work under cooperative agreements with the State Department to provide several services in the first 90 days after arrival. Services include housing, food,

counseling, employment, clothing and medical care. Refugees are eligible for federal cash assistance (Welfare) and Medicaid for the first 8 months as an individual and up to five years as a family [12]. After an initial eight months of eligibility for different assistance programs and services, future eligibility is then determined by each State. Refugees also receive authorization for employment and those 18 years and younger can attend public school. After being in the U.S. for one year, Refugees are then eligible to adjust their status to permanent resident by applying for a green card and after 5 years may petition for naturalization [12].

Liberian Political History

Refugees typically flee their country due to large scale instability. Instability could be due to civil unrest, but it could also stem from outside aggression of neighboring countries. Liberia is a North Western country on the coast of Africa. It is bordered by Sierra Leone, Guinea, Ivory Coast and the Atlantic Ocean (13). Liberia was founded in 1820 by free African Americans and freed slaves from the U.S. Indigenous African tribes met the new arrivals with opposition and sometimes violence. This hostility between the groups would further fuel the instability of the country [13].

The Republic of Liberia was formed on July 26, 1847 and controlled by the True Whig Party (TWP). The TWP created a one-party state where American-born Africans or Americo-Liberians dominated all political positions and excluded indigenous Africans. Dominion of the TWP lasted from 1847 to 1980 when indigenous Liberian Master Sergeant Samuel K. Doe seized power in a coup d'etat. Doe was of the Krahn ethnic group and only promoted Krahn members into political and military power which began

to steadily raise ethnic tensions in Liberia. Doe's presidency was fraught with corruption, election fraud, abuse of human rights and ethnic tension. In 1989, a rebel group led by Charles Taylor invaded Liberia with support from many Liberians [13]. As Taylor fought to claim the Capital, Monrovia, civil war raged until 1996 resulting in the deaths of over 200,000 Liberians and displacing millions. The Economic Community of West African States (ECOWAS) intervened in 1990 by putting in an interim government and preventing Taylor from taking over Monrovia. Samuel K. Doe was captured and killed by a separate faction in 1990 [13].

Once warring factions were quelled, an election was held in 1997, where Taylor won the majority vote. Taylor's presidency did nothing to improve the conditions in Liberia. Literacy and unemployment remained high and Taylor funded rebels in Sierra Leone, instead of rebuilding infrastructure damaged by the war [13]. Rebel factions formed in opposition to Taylor and finally, in 2003, The Chief Prosecutor of the Special Court for Sierra Leone issued an indictment of Taylor for his atrocities in Sierra Leone since 1996. Later in 2003, the government of Liberia and warring factions signed a cease-fire, but tensions peaked and fighting raged into Monrovia, creating a large scale humanitarian disaster. That same year, Taylor resigned from office and ECOWAS began a peacekeeping mission in Liberia [13]. A comprehensive peace agreement was signed by the government of Liberia, political parties, rebels, and civilians and a transitional government was formed. The UN provided security to support peacekeeping efforts until 2005 when the first peaceful, fair elections were held. Ellen Johnson Sirleaf was elected and the political situation has remained stable since [13].

During the two decades of civil and political unrest, several thousands were killed and over 750,000 Liberians moved to refugee camps in neighboring countries like Sierra Leone, Ghana, Guinea and the Ivory Coast [1]. After living for several years in refugee camps, approximately 100,000 Liberians moved to developed countries under the UNHCR resettlement program. Between 1992 and 1994, the first wave of Liberians (2,211 persons) were resettled in the U.S. and the numbers fluctuated until it reached its highest number of 7,174 people in 2004 [1; 14].

Resettlement of Liberian refugees has slowly declined since, and currently the few who arrive, come under the family reunification program and under other immigration status. It is now estimated that over 39,000 Liberian refugees live in the U.S. [4]. In the U.S., the majority of the Liberian refugees are resettled along the east coast of the U.S. in states like New York, New Jersey, Maryland and Pennsylvania. However, small communities of Liberians live in North Carolina, Georgia, and California [1].

Study Area: Guilford County, NC

Guilford County's current population stands at 488,000, and the U.S. Census Bureau reports the number of Foreign Born persons to be around 12.5%, of which it is estimated that 3.9% come from the African continent [15].

The Center for New North Carolinians estimates that over 1,200 Liberians live in Guilford County, N.C and represent one of the major African refugee groups in Guilford County [5]. Though this group started settling in Guilford County in the early 90s, there is a general lack of information on this population especially related to health outcomes. The food insecurity rate in North Carolina stood at 15.7% for the 2008-2010 period [16].

In the southern region of the U.S., 113,137 people lived below the poverty level in 2010 [17].

Transitional Issues for Refugees

When refugees move to the U.S. they usually experience a shift in economic, social, cultural and food environment. Their pre and peri-resettlement characteristics such as time in refugee camps, prior food shortage, education level, and age on arrival may also greatly impact their ability to adapt to the receiving culture. However, Liberians, have a unique relationship with the U.S. since the histories of the two countries are so intertwined. Most Liberians speak English, which gives them a distinct advantage over other refugee groups. Even with this advantage, Liberian refugees might have difficulty adapting to the U.S. lifestyle since they typically come from several years of dependent living conditions in refugee camps. Mainly, refugee camps offer a "temporary" living condition without any source of employment and other means of stable lifestyle such as education, built houses and access to health services [18]. Even outside of civil conflict, education in Liberia was not compulsory and was only available to those families who could afford the tuition fees. Especially in rural areas, many children were kept out of school to help with farming and running the house [1].

Several nutrition screening studies upon resettlement indicate that African refugee children and even adults experience several nutrient deficiencies due to the unstable and compromised living conditions of refugee camps. For instance, in an initial screening by Geltman et al, it was found that upon arrival, 31% of African children were anemic [19]. Thirteen percent of this study sample had under-nutrition with a height-for-weight z-

score of less than -2 [19]. Preliminary screening studies also indicate that vitamin D deficiency is very common among refugee children and adults pre- and post-resettlement [20-21].

In addition to physical health, mental health is also compromised among these groups. Exposure to violence, marginalization, loss of family members and social network for refugee families often leads them to suffer from poor mental health and loss of hope even after resettlement. In a systematic review of 20 different surveys involving nearly 7, 000 refugees, Fazel and colleagues found that one in 10 refugees resettled in western countries have post-traumatic stress disorder and one in 20 have depression [22].

Upon resettlement, refugees often face a dual burden of dealing with poor physical and mental health due to past living conditions and experiences and current challenges of adapting to the culture and system of the host country. Especially, refugees experience a significant shift in the food environment from the rural, dependent living conditions of refugee camps to navigating a fairly automated technology based food environment upon resettlement. A previous study with Bhutanese refugee women in Guilford County, NC highlighted several differences when comparing previous and current food environments [23]. For instance, they did not have refrigerators in the refugee camp and were not accustomed to stocking or buying food for weeks together. They mainly relied on monthly food rations distributed in camps and reported buying few food items such as oil, spices, and some beans once in a while from the local small stores [23]. In a study by Hadley et al., Liberian refugee mothers who experienced difficulty understanding store staff and who had limited information on local stores experienced

higher levels of food insecurity [8]. In focus group discussions with Somali refugee mothers, it was found that they had difficulty using WIC vouchers because of poor familiarity with the allowable food items such as breakfast cereals and difficulty navigating large grocery stores [24]. Hadley et al. found that 46% of refugees (n=281) had difficulty shopping for food because they did not know all of the different foods in U.S. stores and 40% also found it difficult to find stores with foods that they liked [25]. Two-thirds of this sample responded that they did not know how to cook "American" foods. These measures of difficulty in the food environment were significantly associated ($p < 0.05$) with high levels of food insecurity [25].

Age on arrival can also be a significant predictor where those who arrive younger are able to integrate into the receiving society much more fluidly [26]. Those who arrive at less than 15 years of age will be more likely to attend school, rather than going into the workforce. The compulsory attendance laws for children in North Carolina are 7 to 16 years of age [27]. Individuals who are 16 years of age or older are not restricted by child labor laws [27]. Those who arrive younger will adapt more easily into the new environment will acquire skills needed to succeed in the US workforce. Immigrants and refugees who arrive at an older age may be disadvantaged by not being able to attend public schools. Among Liberian refugees from a rural background, 31% were found to be non-literate, and 90% of this figure, were women [1].

Pre and peri-resettlement factors such as those described can directly impact the way that refugees adapt to their receiving countries and ultimately affect their food security status. Factors such as time spent in refugee camps, prior food shortage, age on

arrival, and prior education should all be investigated in relation to food insecurity post-resettlement to better understand this relationship and if there is a need to segment this group based on their specific needs rather than placing everyone under the broad umbrella of the resettlement process.

Food Insecurity

The Life Sciences Research Office defines food insecurity as, "the limited or uncertain availability of nutritionally adequate and safe foods or the inability to acquire acceptable foods in socially acceptable ways" [(6)]. The USDA further divides food insecurity by insecurity with hunger and without hunger [(16)]. Food insecurity with hunger is indicated by reports of disrupted eating patterns and reduced food intake.

Food insecurity is a major public health concern since it is associated with poor physical and mental health status. There is strong evidence that the occurrence of diabetes, hypertension, and overweight/obesity is significantly higher among food insecure adults than adults from food secure households [(28-33)]. It is seen that mainly anxiety related to food affordability forces individuals to resort to cheaper foods with low nutrient density and high calories leading to poor health outcomes. A review of food insecurity studies indicates that the diet of food insecure households tends to be of a low quality characterized by low fiber and vitamins and high in saturated fat and cholesterol [(33)]. The American Dietetic Association has stated that eradicating food insecurity is one of the key factors in achieving good health and well-being among low-income populations in the U.S. [(34)]. Considering such a strong association between food insecurity and health, a number of national surveillance surveys such as the National

Health and Nutrition Examination Survey (NHANES) now include assessments of food security status at the household level [34].

Several scales have been developed and validated to measure three major constructs of food insecurity: anxiety related to food affordability; compromise on quality and; reduction in the quantity of food. One of the most common scales used to measure food security or insecurity status is the USDA 18-item Food Security Scale also captures these constructs in their questions [35]. The USDA 18-item scale groups food insecure individuals into three different levels of severity: 1) Marginal food security is characterized by anxiety and uncertainty of having enough or acquiring enough food to meet the needs of all household members; 2) Low food security is characterized by the inability to obtain enough food without substantially disrupting eating patterns or reducing food intake At this stage households compromise on the variety and the quality of food. 3) Very low food security occurs in households where the normal eating patterns and intake of one or more household members is disrupted because of insufficient money and poor resources to buy food [35]. Affirmative answers to questions that progressively address anxiety, quality and quantity will give the food security score. The disruption in eating patterns and reduced intake of food in very low food security is referred to as hunger or the painful sensation caused by lack of food [6].

Food insecurity status is directly attributed to low educational levels, low income and unemployment, all of which are strong predictors of poverty. The 2010 poverty rate of the U.S was 15.1 % and roughly 20% for foreign-born individuals [17]. The USDA reported that around 20% of U.S. households were food insecure at sometime during

2010 [36]. In the U.S. those who live on incomes below the poverty line are 3.5 times more likely to have insufficient food than those above the poverty line [37]. To put poverty in perspective, the 2012 poverty guidelines set by the Department of Health and Human Services for a family of four is roughly $23,000 per year [38]. The USDA Food Security Report indicates that after controlling for income and education, the rate of food insecurity is significantly higher among non-U.S. - born families than U.S. born families [36]. Additionally, compared to the national average of 14.5%, 26.2% of Hispanic households were food insecure at least once in the previous twelve months [36]. Chilton et al. investigated food insecurity among 19,274 mothers and it was found that household food insecurity was significantly higher at 35% for immigrant mothers (n = 7,216) vs. 16% of households of U.S-born mothers (n = 12,059) [7].

Food Insecurity Among Refugees

A study of 30 refugee families living in the United Kingdom, found child hunger in 60% of households [39]. Though limited in the literature, trends of high levels of food insecurity are seen among African refugees in the U.S. In a study by Piwowarczyk et al. in the northeast region of the U.S., 13% of the refugees/asylum seekers reported often or frequently going to bed hungry [40]. Similarly, in studies with Liberian refugees, a high prevalence of food insecurity and hunger have been identified. In a survey with Liberian refugee women (n = 33), the prevalence of food insecurity decreased with an increased number of years in the U.S [41]. However, food insecurity was still common among those who lived in the U.S. for more than three years. Similarly, in a study with Somali

refugees, child hunger though less common, was seen in families who were in the U.S. for more than three years [42].

In 2006, Hadley et al investigated food insecurity among West African refugee caregivers (n =101) with children under the age of 5 and found that 53% experienced food insecurity. This study also supported that besides poor socio-economic status of low income, unemployment, poor access to food stores and limited knowledge of regular 'American' food was associated with food insecurity [8].

A study conducted in 2011 found that 72% of a sample of Somali families (n = 35) resettled in the U.S. experienced some level of food insecurity [42]. Household or adult-level food insecurity was experienced in 46% of households while child hunger was found in 26% of households [42]. In estimating the differences between food secure and insecure groups, it was seen that recent arrivals (< 3 years) were more prone to food insecurity than those who were in the U.S. for more than three years.

Similar results have also been seen in Liberian families resettled in the U.S. In a sample of 33 Liberian refugees, 85% had experienced food insecurity. Adult and household level food insecurity was reported in 1 out 5 households and child hunger was prevalent at 42%. In this sample, 45% of respondents had no formal education and 60% had household incomes below $1000/month [41].

While some research has been conducted with Liberian refugees in the U.S, there is still a lack of information on what food access related issues this group faces and why they are vulnerable to such a high level of food insecurity. This is important since as mentioned earlier, food insecurity is a key indicator of poor health status among low-

income populations. In addition, there is a very limited amount of information on West African refugee group health status in the U.S. The U.S. Census Bureau accounts for foreign born residents and even separates this category into areas of origin, but areas of origin are non-specific and are listed by continent [15]. The closest estimate for Liberians in the census data is that 3.9% of foreign born are from Africa [15]. This only highlights the issue of under-representation for most immigrant and refugee groups.

Food and Budget Management Strategies

When individuals or families experience food insecurity, there is often some adoption of coping strategies to alleviate the situation. Participation in federal assistance programs is one method of alleviating food insecurity. The USDA reported that 40.3 million people per month received SNAP benefits and 9.17 million per month received WIC assistance in 2010 [36]. Anater et al surveyed 492 individuals, of whom 82% were food insecure, and found that 43% currently received SNAP. In this same sample, individuals reported other coping strategies such as going to a food pantry for food (96%), skipping meals (68%) and eating meals at other's homes (67%) in the past 12 months [43]. In a study of displaced Sudanese women living in an IDP (internally displaced person) camp in Khartoum State, 59 % reported buying food on credit while 6% reported getting help from their neighborhood in order to ensure household food security [44].

Food and budget management strategies used among refugee populations after resettlement are under-investigated. However, in a study of 157 African refugees living in the U.S., participants noted that they would often cook one large meal (soup) and

consume it for several days thereafter to make food last longer [9]. Peterman et al investigated food shortage and access related issues in relation to pre-resettlement factors among 160 Cambodian refugee women and found that 88% reported experiencing food deprivation before moving to the US and described engaging in extreme coping strategies such as eating nonfoods and trading for food [45]. Further analysis indicated that this pre-resettlement food deprivation predicted their dietary habits in the US.

There is limited information on the budgeting practices and strategies of food insecure immigrants and refugees. However, some budgetary strategies such as using coupons, shopping at dollar stores and buying sale items have been endorsed by food insecure individuals [43]. In a 2010 Australian study by Pereira et al, African refugees (n = 10) mainly classified as low socioeconomic status reported spending 24% of their income on groceries [46]. Of these participants, all received government allowances and none reported having their own food garden. Budgeting skills and practices such as use of food pantries, food choice, food costs particularly of traditional African foods, and gardening should be investigated among refugee groups as a means to alleviate food insecurity seen after resettlement.

Significance

It is imperative to perform research with under-represented groups like Liberian refugees in order to determine their makeup, needs and health status in the U.S. The Liberian refugee community appears to be highly vulnerable to food insecurity due to many factors. Food security status is of particular interest in Guilford County, NC where it is reported that over 1,200 Liberian refugees currently reside and the food insecurity

rate is higher than the national average. Since food insecurity has been shown to promote serious health implications among general populations as well as refugee and immigrant populations, it is important to study this topic among this population and understand what other factors besides poor economic conditions affects food insecurity among Liberians.

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CHAPTER III

RESEARCH ARTICLE

Out of the Frying Pan and into the Fire: Post-Resettlement Food Insecurity Among Liberian Households

Abstract

Objectives: To examine post-resettlement food insecurity rate and its relationship with socio-demographic and pre-resettlement characteristics among Liberian households; and assess differences in the amount of money spent on food per month by household characteristics.

Design: Semi-structured in-home interviews.

*Setting: S*outheast region of the US.

Subjects: Liberian *w*omen caring for children 12 years of age or younger (n = 33).

Results: Participants have lived in the US for 12 years on average. Food insecurity of any level was indicated in 61 % of households and child hunger or severe food insecurity was reported in 30 % of households. Food insecurity was higher among women who were aged 40 or older, had high school or less education and those making less than $1000 per month. Women who had arrived in the US older than 15 years of age were more likely to be food insecure. On average, participants spent $ 109 monthly on groceries per household member. In estimating differences, results indicated that older women, those who experienced food insecurity and did not have a car spent more money on food than their counterparts ($P \leq .10$).

Conclusions: Liberian women experience high levels of food insecurity upon resettlement. Besides poor economic conditions, pre-resettlement characteristics such as number of years in refugee camps and age upon arrival (school age vs. older than school age) were associated with food security status. These findings call for future research to further understand what role pre-resettlement living conditions and experiences affect food choices, budgeting and thereby food security status among refugees.

Introduction

Food insecurity referred to as the inability to access sufficient, safe, and nutritious food to maintain a healthy and active life—is of major public health concern because it is associated with negative health outcomes such as poor mental health, overweight/obesity, diabetes, and other chronic diseases [1-6]. The American Dietetic Association has stated that eradicating food insecurity is one of the key factors in achieving good health and well-being among low-income populations in the U.S. [7]. The USDA Food Security Report indicates that besides low-income and education, other factors such as single parent households and non-U.S.- born families are more prone to food insecurity [8]. In a study of over 19,000 households, 35% of mothers in immigrant households reported food insecurity compared to only 16% of non-immigrant households [9]. A few studies indicate that, compared to the national average, the prevalence of food insecurity is significantly high among African refugees in the U.S. For instance, one study found that among a sample of 101 West African refugee women, 53% experienced food insecurity [10]. Similarly in a study with 195 Somali refugee women 67% reported food insecurity and 23 % indicated experiencing hunger at the household level [11, 12].

Upon resettlement, refugees usually face the dual stress of coping with unstable pre-resettlement experiences and socio-cultural differences of their host country. In a cross-sectional survey by Piwowarczyk et al in the US, approximately two-thirds of refugees recalled experiencing hunger in the refugee camps [13]. In a study with 160 Cambodian refugee women, 113 (88%) reported experiencing food deprivation before moving to the U.S. and indicated engaging in extreme coping strategies such as eating nonfoods and trading for food [14]. The multivariate analysis indicated that pre-resettlement food deprivation predicted dietary habits in the U.S.

Refugees who previously lived a rural setting, are challenged by the experience of adapting to a more organized, technology based food environment such as the U.S. In addition to language issues, these refugees usually experience socio-cultural differences upon resettlement. In a study by Hadley et al in the northeast region of the U.S., more than one third of the Liberian refugee mothers interviewed expressed difficulty shopping for food at regular grocery stores due to unfamiliar food choices and those who shared this sentiment were more likely to be food insecure than their counterparts [15]. A recent study of Bhutanese refugee women in the U.S. further highlighted differences in current versus pre-resettlement food environment [16]. The participants did not have access to refrigerators in a refugee camp and were not accustomed to stocking or buying food for weeks. These differences in food environment, may affect the use of effective shopping and budgeting practices and thereby impact food insecurity status among refugee families. Several studies indicate that refugee diets in the U.S. often represent the items

that were designated as high status foods in their country of origin. These included meat, sugar sweetened beverages and other processed food [15, 17-19].

Liberia has experienced civil war and instability for nearly two decades, producing several waves of refugees. After the 1989 civil conflicts began, around 750,000 Liberians fled their homes and sought asylum in neighboring coastal West African states from The Gambia to Nigeria where they lived in refugee camps for several years [20]. Approximately 100,000 Liberians were relocated in developed countries under the United Nations High Commissioner for Refugees resettlement program [21]. Liberian refugees were the second largest refugee group arriving to the U.S between 2003 and 2004 [22]; and current data suggest that over 39,000 Liberians live in the U.S. [23].

In this exploratory study with Liberian women, the main objectives were to examine food insecurity rate and its relationship with socio-demographic and pre-resettlement characteristics such as age upon arrival, number of years in refugee camps and prior food shortage. In addition, data were collected to investigate the differences in the amount of money spent on food per month by food security status socio-demographic characteristics. Budget and food management strategies were also identified.

Methods

The study was approved by the Institutional Review Board (IRB) at the University of North Carolina at Greensboro. The study was conducted with women who met the following criteria: 1) born in Liberia 2) 18 years or older; 3) taking care of at least one child 12 years-old or younger; and 4) the main meal preparer of the household. The study was carried out between August 2010 and June 2011. During the study period,

a convenience sample of 33 Liberian women was recruited to participate in a semi-structured qualitative interview. Eligible participants were recruited using a snowball sampling method. A Liberian woman familiar with the study community was hired and trained to recruit participants and conduct semi-structured interviews in the participants' homes. Upon meeting the study criteria, the community interviewer explained the purpose of the study to potential participants. For those who expressed interest, informed consent was read in English and written consent to participate in the study was acquired. Each interview took approximately 90 minutes and was audio tape recorded while research staff took notes. Upon completion, participants were each given a $7 gift card for their time.

Semi-Structured Interview Guide

The following section summarizes the major topic domains explored within the interview guide and their method of extraction. See Appendix A for the complete questionnaire.

1) Socioeconomic: Under this section, information on variables such as household size, total household income, educational attainment, and participation in the WIC program was collected. Also information on length of time in the U.S. and current immigration status (refugee vs. immigrant) was collected.
2) Food Security: An eighteen-item USDA Food Security Scale was used. This validated scale has 15 statements and 3 sub-questions. The statements inquire about various situations related to food affordability and shortage while three sub-questions assess the frequency of a certain situation such as skipping meals and

cutting the portion size of a meal. For this study, a 30-day reference period was used. Of the eighteen items, six items on the scale had three possible response options (never true, sometimes true, often true), which were collapsed into two categories and scored as 0 for 'never true' and 1 for 'sometimes true/often true'. For the remaining items, the options of 'yes' or 'no' were coded as 1 and 0, respectively.

3) Pre-resettlement lifestyle and related characteristics: In this section, questions were asked to determine where participants lived before coming to the U.S., how long, and if it was a refugee camp. Participants were then asked about the setting (rural vs. urban) and if they experienced food shortage in that place or before coming to the U.S. This section also included questions on immigration status and age upon arrival.
4) Food budgeting and management practices: In this section, specific questions were asked to assess the amount of money spent on groceries. Questions were asked specifically about SNAP benefits i.e., if they received it and if yes, how much. In addition questions were asked if they spent any personal income on groceries. Additionally, questions were asked about strategies (if any) they used to stretch or manage their food budget. For example "have you considered gardening?" or "do you borrow money from friends or relatives?"

Data Analyses

Data were analyzed using the IBM –SPSS for windows (version 19.0). Descriptive frequencies were carried out to estimate socio-demographic characteristics of

the study population e.g., education level, income, employment status and number of years in the U.S. Descriptive frequencies were also carried out to assess pre-resettlement characteristics e.g., age upon arrival, prior food shortage, immigration status upon arrival, prior living conditions, and number of years in refugee camps. To calculate the food budget per household member, the sum of personal income and SNAP benefits (if they received any) spent per month was divided by household member.

Chi-square was used to detect differences in socio-demographic and pre-resettlement indicators between food secure and insecure households. To estimate food security/insecurity status, as recommended by the USDA Food Security scoring system, the original responses ranging from 0 to 18 were divided into the following two categories: 1) Food security (0 -2 score), 2) Food insecurity (3 - 18 score).

Some of the categorical variables with 'yes' and 'no' options were tested as is, while continuous variables or categorical variables with three or more options were collapsed either by median or by logical categories. For instance, the age upon arrival variable was grouped into 15 years or younger vs. older than 15 years categories to examine the difference between those who attended school in the U.S. upon resettlement in comparison to those who did not. One-way ANOVA analyses were also carried out to estimate the difference in the amount of money spent on food per month by food security status and other socio-demographic variables. Results were considered statistically significant at a probability value of ≤ 0.05 while a value > 0.05 and ≤ 0.10 was considered marginally significant.

To analyze food budgeting practices, participants were asked about common practices such as gardening and borrowing money from friends or relatives. Responses of "yes" and "no" were then analyzed by descriptive frequencies in SPSS. Upon giving an affirmative response, participants were then asked to describe how they utilized this practice. The two reviewers (PI and research assistant) independently reviewed food management descriptions which were then coded using the constant comparative method.

Results

Among the total 33 participants, the mean age was 39 years. Participants had been living in the U.S. for an average of 12 years with arrival between 1982 and 2007 and the most arriving in 2004. The mean household size was approximately four individuals with an average of three children per household. Nearly half of the participants (48%) were unemployed and 12% had no formal education. Of those who disclosed household income (n = 30), 36% reported zero monthly income and reported living mainly on governmental benefits. The average income of participants was approximately $903 per month and out of the total 33 participants, 42 % reported receiving SNAP benefits and 30% endorsed receiving WIC benefits. Approximately, one-third of the participants' did not own a car and/or did not have driver's licenses. In assessing pre-resettlement factors, 39% reported living in refugee camps for an average of 8 years before coming to the U.S. Almost half of the participants (46%) emigrated from camps as a refugee and 55% experienced food shortage before coming to the U.S. When prior living descriptions were investigated, 37% reported living in a rural setting before coming to the U.S. The average age of arrival for participants was approximately 27 years of age.

Food insecurity of any level was seen in 61% of households. Of food insecure households, half reported experiencing low food security and the other half experienced very low food security or child hunger. In estimating socio-demographic differences between food secure and insecure households, it was seen that the participants' age, education and household income were significantly different between the two groups (Table 1). As expected, food insecurity was more common among lower income households than those who reported income of more than $1,000 per month. In comparison, food insecurity was higher among the 40 years or older age group compared to the younger age group. Also, as shown in table 1, 45% participants with less than high school education experience lower food security compared to their counterparts high school education or higher.

In comparing pre-resettlement characteristics between food secure and insecure groups, significant contrast was seen by the age upon arrival and number of years in refugee camps (Table 1). Those who lived in refugee camps longer or more than five years were more food secure than their counterparts (less than five years). Additionally, food insecurity rate was lower when participants came to the U.S. at compulsory school attendance ages of 15 years or younger.

Descriptive analyses indicated that participants spent an average $109 per month on food for each household member including children and adults. Results indicated that for 15% of participants, SNAP benefits represented the total food budget for their households. Table 2 reports differences in the amount of money spent on food per household member by socio-demographic variables. Pre-resettlement characteristics were

not found to be associated with monthly food budget (data not shown). Except age, the difference was significant across the different socio-demographic variables including food security status. Contrary to expectations, food insecure participants reported spending more money on food than secure participants. Furthermore, the lower-educated and those earning less than $ 1,000 per month were spending more money on food than their counterparts. The difference was also seen by driver's license. Those who did not have a driver's license reported spending 40% more on food. In assessing food budgeting and management practices, it was found that vegetable gardening was a common and favorable strategy, i.e., 13 out of 33 participants (39%) reported gardening or considered doing so (Table 3).

As seen in Table 3, besides using gardening as an option to help with the food budget, many participants preferred home grown vegetables to have a 'fresh taste like back home." Additionally, a number of participants indicated apprehension about processing, packaging and farming practices including the use of pesticides and other chemicals in the U.S.:

> Back home we always ate fresh food. Fresh food, you know. From the garden, you know what I saying? We taste the difference, you know we also ate organic food. Here is nothing like that. Yeah that what we also looking for that taste.

> …it's my country but most of the food is just right from the garden either you picking it and you eating it but America it on farm and putting lot of chemicals and stuff in those food and bringing it and putting it in the store exactly so.

A few women even reported getting produce from their neighbors' gardens or relatives as evidenced by one of the participant's quote:

> I don't do (gardening) personally, but I have a family member who does. And during that time I get my tomatoes, squash, and okra, and I do a lot like beans stuff like that.

In addition to gardening and getting home grown produce from friends/relatives, the two other common food management practices endorsed by participants were: 1) borrowing money from friends and relatives (18%) and; 2) going to friends, neighbors, or relatives for meals or food (18%). Some of the quotes describing these themes are as follows:

> I can go to my people. Right now self, I coming to go to them. The small rice here but no soup. I coming to them tomorrow. Some people can say, okay, my own plenty you can carry some. Take it and put it in the stove.

> Sometimes my church can help me when I don't get when the food stamp finish. My church can help me buy, I don't work, my church can help with small money, I just buy food. Then I go to the store right here I say when my food stamp come, then when I don't see money from anybody the I go to the store, when my food stamp come then I will give you money. That the one the food business can help me cause I can go there to take food from there.

Discussion and Conclusions

The goal of this study was to examine food insecurity rate and its relationship with socio-demographic and pre-resettlement characteristics. This study also sought to investigate the differences in the amount of money spent on food per month by socio-

demographic characteristics. Themes regarding budget and food management strategies were also identified.

The results indicate that food insecurity is very common in the Liberian community and the rate is significantly higher in comparison to the national and state average of 14.5 % and15.7%, respectively [24]. Similar studies also indicate the high prevalence of food insecurity among African refugee groups upon resettlement in the U.S. [10-11, 25-26]. As expected, low-income and low education levels were associated with food insecurity in this community. Additionally, the findings of this study indicated that food insecurity was more common among older Liberian women than their younger counterparts. In contrast to the general expectation of an inverse relationship between the length of stay in the U.S. and food insecurity, a high rate of food insecurity including child hunger was seen in our participants who were living in the U.S. for an average of 12 years. Similarly, in a study by Dharod et al with Somali refugee women (n = 35), food insecurity was experienced by 72% of the participants even though most women were in the U.S. for 6 or more years [11]. This indicates that issues related to food insecurity continue to prevail well past the time that refugees are expected to be self-supported. Under the resettlement program, refugee families are given financial, medical and housing benefits for 8 months as individuals and up to 5 years as a family under the assumption that the individuals will be self-reliant economically and will be successfully integrated into the mainstream society in that initial period [27]. However, this study as well as that by Dharod et al, suggests that there is some gap in the process of resettlement and refugee communities tend to struggle even after a long period of resettlement [11-12].

Studies by Piwowarcyzk and Peterman et al, indicated that most of the refugees experienced food shortage before coming to the U.S. [13-14]. Considering the fact that refugees experience humanitarian emergencies and civil instability before resettlement, it is critical to understand if and how pre-resettlement living conditions and experiences affect food choices and related behaviors upon resettlement. In a study by Dharod et al with 195 Somali refugee women, intake of meat was significantly higher among food insecure than secure participants [12]. Results of Peterman et al indicated that Cambodian families in the US considered high fat meat as a 'highly deprived item in pre-migration' and did not prefer restricting it in spite of the related health issues they experienced post-resettlement [14]. In this study, the number of years in refugee camps was associated with food security status. Even in a small sample of 13 participants, food security was common among those who lived in camps for more than 5 years. A plausible theory may be that the previous long-term limited food situations in camps may make individuals more immune to food shortage and constraining situations upon resettlement. Piwowarczyk et al found that refugees were more likely to experience food shortage before leaving their countries of origin compared to asylum seekers. In that sample, 17% of refugees described their food consumption in the U.S. as less than in their countries of origin which may be indicative that while food shortage is occurring post-resettlement, it may not be seen as unusual compared to previous living conditions [13].

It was also seen that those who arrived at younger or school-age were more food secure after 11 or more years post-resettlement than their counterparts. This may be due to the fact that by arriving at a younger age refugees get to attend school which may

enhance an early and effective adaptation to the U.S. culture. Among this sample, most who arrived at 15 years or age or younger also reported being brought here by family members who were already living in the U.S., indicating that they may have a better protected safety net to settle into the new country than those who come on their own or at an older age.

Interestingly and contrary to expectation, food insecure participants spent more money on food than their secure counterparts. This may attributed to several issues such as not having a car, preference of African foods which are generally expensive and/or, poor budgeting and food management skills due to low education and attitude of managing life one day at a time due to prior unstable living situations. In our study, more than half of the participants did not have a car and none reported using public transportation, this indicates a heavy reliance on others for a ride to stores where participants likely end up doing bulk shopping less frequently than they would if they were able to dictate their own shopping schedule. This may also limit selective shopping at multiple stores such as buying certain items from one store versus another for cheaper prices. Participants with lower education also spent more money on food than their more highly educated peers. Those who have lower education may have difficulty budgeting, comparing brands and prices and hence may end up spending more.

Gardening was also a more popular and favored strategy for participants to manage a tight budget. The large number of participants who considered gardening indicated that this was an acceptable and feasible way to reduce food costs and improve food budget. In addition, though not as common and preferred as gardening some

participants reported borrowing money from friends and relatives. In a study by Hadley et al in the northeast region of the U.S., 42% of the Liberian families endorsed borrowing money or food from neighbors and friends when they experienced food shortage [25].

There were a number of limitations specific to sampling and community-based data collection mechanisms. Sampling saturation was achieved at the sample size indicated, however it may be considered a limitation and larger studies are merited with this population. Limitations of this study also included a cross-sectional study design and a convenience sampling strategy. The use of the community interviewer model provided many benefits, but it is noted that there could have been bias in participant response due to familiarity with the interviewer and stigma attached to the intimate nature of the food insecurity measures. There was a great deal of resistance to recruitment which was attributed to fear, mistrust and the apprehension that interviewers were government workers which inherently affected participation. This may have excluded some of the most disadvantaged from participating.

In summary, this was a unique study considering the investigation of pre-resettlement characteristics and current budgeting practices in relation to food insecurity and to the best of the authors' knowledge there is a lack of research examining these associations. Further research is warranted to understand the process of how pre-resettlement living conditions and experiences affect food choices, budgeting and thereby food security among refugees upon resettlement.

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Table 1 Differences in Socio-demographic and Pre-migration Characteristics Between Food Secure and Insecure Households (*n* = 33)

	Food Secure	Food Insecure	*P*[§]
	n (%)	*n* (%)	
Age (years)			0.10
18-30	3 (23)	5 (25)	
31-40	7 (54)	4 (20)	
>40	3 (23)	11(55)	
Household Income ($)*			0.02
< 500	3 (25)	9 (50)	
500 to 1000	0 (0)	4 (22)	
> 1000	9 (75)	5 (28)	
Number of Years in U.S.			0.22
≤ 10	5 (29)	8 (50)	
≥ 11	12 (71)	8 (50)	
Education			0.00
< High school	2 (15)	9 (45)	
High school	2 (15)	9 (45)	
> High school	9 (70)	2 (10)	
Marital Status			0.93
Single, widowed, divorced	8 (61)	12 (60)	
Married or with Partner	5 (39)	8 (40)	
Employment			0.10
Full or Part-time	9 (69)	8 (40)	
Unemployed	4 (31)	12 (60)	
Receives SNAP			0.71
Yes	5 (39)	9 (45)	
No	8 (61)	11(55)	
Driver's License			0.12
Yes	10 (77)	10 (50)	
No	3 (23)	10 (50)	
Immigration Status on Arrival*			0.71
Immigrant	7 (54)	8(47)	
Refugee	6 (46)	9 (53)	
Age on Arrival			0.05
≤ 15	5 (39)	2 (10)	
> 15	8 (61)	18 (90)	
Prior Food Shortage†			0.84
Yes	8 (67)	14 (70)	
No	4 (33)	6 (30)	
Prior Living Description†			0.52
Rural	4 (31)	8 (42)	
Urban	9 (69)	11 (58)	
Number of Years in Refugee Camp‡			0.05
≤ 5	0 (0)	4 (50)	
> 5	5 (100)	4 (50)	

* (*n* = 30); † (*n* = 32); ‡ (*n* = 13); § Chi-Square Test; Significance *p* = 0.05, marginal significance *p* = 0.1

Table 2 Differences in the Amount of Money Spent on Food Per Household Member by Socio-demographic Characteristics (*n* = 33)

	n	Amount of Money ($) Mean (SD)	*P*†
Age (years)			0.42
18-30	8	118 (44)	
31-40	11	92 (40)	
>40	14	117 (61)	
Household Income ($)*			0.01
< 500	12	138 (56)	
500 to 1000	4	109 (16)	
> 1000	14	78 (39)	
Number of Years in U.S.			0.02
≤ 10	17	128 (55)	
≥ 11	16	89 (39)	
Education			0.01
< High school	11	146 (59)	
High school	11	97 (34)	
> High school	11	84 (37)	
Marital Status			0.05
Single, widowed, divorced	20	123 (53)	
Married or with Partner	13	88 (42)	
Employment			0.01
Full or Part-time	17	86 (39)	
Unemployed	16	132 (53)	
Driver's License			0.03
Yes	20	93 (41)	
No	13	132 (57)	
Food Security Status			0.10
Secure	13	90 (36)	
Insecure	20	120 (59)	

* (*n* = 30); † ANOVA; Significance *p* = 0.05, marginal significance *p* = 0.1

Table 3 Food and Budget Management Strategies Endorsed "yes" By Participants (*n* = 33)

	No. Endorsing	Percentage of Sample (%)
Have you considered gardening?	13	39
Have you considered signing up for SNAP if you don't already receive it?*	14	42
Do you go to friends/relatives/neighbors for meals or food?	6	18
Do you borrow money from friends/relatives/neighbors?	6	18
Do you get food on credit from small store owners?	3	9

Supplemental Nutrition Assistance Program (SNAP); *Nineteen participants did not receive SNAP.

CHAPTER IV

EPILOGUE

I began working with Dr. Dharod early in the first semester of my master's degree program. Dr Dharod was developing a project in order to understand food insecurity in the Liberian community. She gave me the opportunity to work on the project from the early developmental stages of putting the questionnaire together to hiring and training community interviewers. We endeavored to understand what issues the Liberian community was facing concerning food insecurity. Also, what factors or characteristics contribute to their food insecurity?

In the first semester we developed a semi-quantitative questionnaire (see Appendix A) based on our overall research topic to understand or basically profile the food insecurity in the Liberian community. I met with Raleigh Bailey, who was previously the director of the Center for New North Carolinians to understand the group I would be working with and to alter the questionnaire to be more culturally appropriate. Dr. Dharod then arranged meetings with women who would be our potential community interviewers. I greatly appreciated being involved in this process and I gained a lot of experience with the fundamental underpinnings of research.

We interviewed several women and hired one woman named Naomi (Name changed for privacy) to help me conduct interviews. Naomi was also given the responsibility of recruiting women from her community and setting up interviews. Naomi

completed the training and met our requirements of having typing skills and access to acomputer. Naomi, was new, only having been here a little over a year. Despite successfully completing training, we quickly realized that Naomi had difficultly reading and writing in English. In the first few pilot interviews Naomi also seemed very biased in her delivery of questions and sometimes made faces to the responses of participants. This was unacceptable and we tried to advise her on appropriate protocol but her demeanor did not change and in fact she began to seem apathetic to the process. Unfortunately we had to ask her to leave the project. She had no hard feelings and recommended a few women who might be interested. Luckily one of those women was Doris. Doris had been living in the U.S. for several years and also had a master's degree where she had conducted her own research. She understood the research process and knew how to collect data. She was a well connected and active community member and was truly committed to helping other Liberians. Ultimately she was warm, caring and professional. She also helped to educate me about Liberian culture and politics. She explained particular African terms and foods that I was unfamiliar with. I know without a doubt that this project would not have worked without her.

One of the most difficult parts of this project was recruiting participants. Doris, our community interviewer was given the task of recruiting women since she was an active member in her community and would be likely to find interested women. Even though we used the community interviewer model to ensure trust and participation, recruitment was painstaking. Doris called many women. Some women gave her wrong numbers, refused to call her back and even put her off for several months. We would

schedule interviews only to knock at the door with no answer. At one point after a failed interview, we drove to the home of an elder Liberian woman in the neighborhood who had her son go with us to find possible participants. We happened to find two women in an apartment complex parking lot getting their groceries out of the car. We explained the project and thankfully they agreed.

I spoke with Doris to understand why she thought we had such difficulty or if women gave her reasons for not participating. I was pained to learn that there was a genuine fear related to the sensitive food security related questions particularly regarding children. The women thought we might report them to Child Protective Services or that we were secretly from the government and might take their food assistance. Doris took great efforts to describe the project to them and reassure them that this was a university project that we would ultimately help their community and guard their privacy. Over time, as the community became familiar with us, women were more comfortable meeting with us. Even in interviews there was reserve and tension from the women, until we got further into the interview and could explain ourselves more, particularly my presence, and the fact that I was genuinely interested in their well-being. I made sure to be an active participant in their community by attending the Liberian Independence Day celebration held in July and attending the Liberian women's group meeting to tell them about our project. We got at least three participants from the women's group meeting. As I learned more about the community I also found that many women would say "why should they participate when nobody had cared about them before or done anything to help them". I was thrown by this until, we really analyzed the research and saw that the women had

been here an average of 11 years and research was only recently being done to find out how well they were adapting post-resettlement.

To me, this was appalling, that somehow after the initial resettlement period, nobody had come to check up on them or really re-evaluate their situation. There must be a crack in the system where people fall through after that initial set-up period. Maybe there is a lack of manpower or financial resources among the resettlement agencies to go back and do follow-ups with the families. Possibly the local universities were slow on initiating research with the many different ethnic groups resettling here. No matter the root cause, this issue points to a gap in the research truly evaluating resettlement agencies and intensive research is needed involving our very diverse community to understand their differences and their needs. Future projects with refugee and immigrants should also seek to become involved early with the community in question in order to reduce later resistance to research and interventions.

There is need for social and health equality for our refugee and immigrant groups. Food insecurity is one issue among immigrants and refugees that was shown to be evident in this project and I feel that it should be the focus of future research and interventions. Interventions should seek to focus on food access solutions that are neighborhood centered. For example, community gardens would be an excellent way to provide produce for refugee families. Many of the Liberian women interviewed noted that they were farmers back home or used large gardens to feed their families. Gardens would be an empowering, viable, cost effective way to reduce food insecurity for these families.

We ultimately found that the Liberian community experiences high rates of food insecurity compared to the state and national averages. Their food insecurity is associated with such factors as education, number of years in the U.S and prior living conditions. We also found that budgeting food costs is a particular issue among Liberians that may be contributing to their food insecurity.

In the entirety of this project I learned a great deal about the Liberian community and their needs and wants. However, I learned about myself as well. I learned that you check your expectations at the door. There are no good assumptions and you might as well give up on a concrete schedule. When you are on “African time” remember to show up about an hour later. I learned that people will offer you food and hospitality when they have practically nothing to give. If you are kind and genuinely care, it will show and they will trust you. I gained more cultural competence and a more open mind. I learned that I love community nutrition and research. I learned that I cannot leave this research and these people behind. I know now that I will go on to investigate interventions with this group and others that will help them live better lives in their new home country.

APPENDIX A

SEMI-STRUCTURED INTERVIEW GUIDE

Food Access, Food Insecurity and Dietary Habits among Refugees in Guilford County

Semi-structured Interview Guide
LIBERIAN COMMUNITY

2010 – 2011

The semi-structured interviews will be conducted with Liberian women.

For an interview, recruit women that meet the following criteria:

- *Is 18 years or older*
- *Has at least one child 12 years-old or younger*
- *Is the main meal preparer of the household*
- *Lives in Guilford County, NC*

Interviewer: Ensure ALL the above criteria are met for an interview. If not, please thank the person and discontinue.

SCRIPT:

Hello. My name is _____.
We want do an interview with you to understand your day to day activities, especially your food related activities such as food shopping, cooking methods and main dishes you cook at home.

Before I start with an interview, first, let's go through the consent process. We would like to have your written consent for this interview. As mentioned in the consent form, whatever information you share with us or discuss during an interview will not be shared with anyone.

Interviewer:
Go through the consent form.
Ask the participant to sign the two copies of the consent form.
Keep one copy and give another copy to the participant.

SCRIPT:

As mentioned in the consent form, I will tape record our conversation; this will help me to have an interactive conversation with you without worrying about missing information.
During the interview, if you have any questions at any time, please feel free to ask.
Also, as mentioned in the consent form, you can discontinue the interview if you feel uncomfortable or do not feel like participating in the interview.

Interview No.: ____
Start time: _____ End time: _____
Date: _____

I.SOCIO-DEMOGRAPHICS

SCRIPT:
So, first I will start with some personal questions such as your age, education, monthly income and other things.

Interviewer: Besides recording, write down the responses in this section.

1. What is your full name? _____
2. What is your age? _____ (*note down in years*)
3. Are you working: ◊ Yes (3a, 3b & 3c) ◊ No (3d)
   3a. If yes, is it part time or full time? _____
   3b. If yes, where do you work? _____
   3c. If yes, what is your total monthly income including those of others in the household?_____
   3d. If no, What is the total monthly income of all adults in the household?_____
4. What is your religion? _____
5. What is your marital status? (Circle the option)
   1) Married
   2) Single
   3) Divorced
   4) Have a partner
   5) Other, _____
6. What about education; did you go to school: ◊ Yes (6a) ◊ No
   6a. If yes, how many grades did you complete?
   _____
   Or what is your last degree? _____
7. Currently, are you taking any classes: ◊ Yes (explain)_____
   ◊ No
8. Do you have a car? ◊ Yes ◊ No
9. Do you have a driving license? ◊ Yes ◊ No
10. How many members live in this household (including both adults and children)?
    _____

11. How many children do you have? _____
    a. What is the age of your children: 1st child: _____; 2nd Child: _____; 3rd Child: _____; 4th Child: _____; 5th Child: _____

    b. Are you currently pregnant? ◊ Yes ◊ No

12. Do you get Food Stamps? ◊ Yes ◊ No
13. Do you get WIC vouchers? ◊ Yes ◊ No
14. Do you have health or medical insurance? (ex. Medicaid) ◊ Yes
    ◊ No
15. Do your children have health or medical insurance? (ex. Medicaid) ◊ Yes
    ◊ No
16. Where were you born (country of birth)? _____
17. In which year did you come to the U.S.? _____
18. What is your current immigration status? (Circle one) Refugee Asylee
    Immigrant Other
19. What was your immigration status when you first arrived here?_____
    a. Describe the process you had to go through for this_____

20. What language(s) do you speak at home? _____
21. What do you think about your English speaking skills? Is it very good, good, fair, poor or very poor ***(Circle the option***): 1. Very good 2. Good 3. Fair 4. Poor 5. Very poor

II. DIETARY HABITS (24 hour dietary recall)

SCRIPT: Now moving on to eating habits. Could you tell me what you had ***yesterday*** from morning to night. Except water, tell me everything you had like tea, coffee, vegetables, fruits, juices etc.

22. 24 hour Dietary Recall

Interviewer:

1st step: First, Record just the list of food and time

Prompts: a. How many meals per day
b. What you have in the morning, around what time
c. What you have at night, around what time

2nd Step: Once you list foods or dishes, collect information on amount

Amounts: 1 cup, 1 tbsp, 1 glass, handful or numbers like 2 apples, one bar etc.

3rd *Step: List the ingredients of the foods or dishes*

Prompts: a. L**ike how you make tea or how much sugar you use in tea**
b. In sandwiches**, what bread you use**
c. What you add in soup
d. What the ingredients of a **curry** are

Time of the day	Name of the food items	Amount	Ingredients

Interviewer: Once the 24 hour food recall is complete, read the food list back to the participant. Ask the participant if the list is correct or if they forgot to mention any food that was consumed on that day.

III. FOOD SHOPPING

SCRIPT: Now I would like to know about your food shopping habits.

23. First, can you tell me the name and location of all the stores and **places (including flea market/farmer's market, convenience/gas station or corner stores)** from where you buy food?

Interviewer: First list all the store names and location. Then for each store ask questions: C, D, E.

A. Name of the store	B. Location (address)	C. How frequently you go to this store Examples: everyday, once a week, twice a week, every two weeks, monthly,	D. How you go to this store (by car, bus, walking, getting a ride) Make sure: by car refers to "did you drive yourself or did someone take you to the store"	E. What food items you usually buy from this store and **WHY**

24. So to begin with, what you think of the lifestyle here in the U.S., how different or similar it is from Liberia?
    A. What things you like about U.S.?
    B. What things you dislike about U.S.?

25. Now, specifically what you think about food stores or food shopping here in the U.S.?
    A. How different or similar are the food stores in the U.S. compared to the food markets back in your country?
       Prompts:
       a. Size of the stores
       b. Open market vs. covered stores
       c. Distance to the stores
       d. Corner stores or stores in neighborhood
       e. Ability to bargain
       f. Taste and freshness of the food
       g. Food choices: more variety, less variety
       h. Cost of food in the U.S. and back in your country. What food items are expensive here in the U.S., and what items were expensive in Liberia?

26. Specially, when you go to the regular grocery store like Wal-Mart, how do you go about doing food shopping? Can you walk me through the whole thing or explain what you do once you are in the store?
    Prompts:
    a. Do you go to specific sections or do you look for new things?
    b. How do you check prices?
    c. Do you compare brands?
    d. Do you make a list before you go to the store?
    e. Do your friends/ neighbors/husband or your children help you with the shopping?
    f. Do you check the store flier?
    g. Do you buy only the items that you know?
    h. What do you do when you don't find the item that you are looking for?

27. Especially related to food shopping, what are some of the issues you face here in the U.S.?
    Prompts:
    a. Language issues
    b. Store staff
    c. Size of the store
    d. Unfamiliar food choices
    e. Distance

IV.FOOD BUDGET & MANAGEMENT

28. Every month, approximately how much money do you spend on food (**not including food stamps**)?
    A. (If they get food stamps) What about food stamps, how much do you get through food stamps?
    B. Explain, how you use your food stamps? Do you use then all at once or in small amounts at a time?
    C.What food items you usually buy with food stamps?

29. Do you ever worry that there might not be enough food for the whole family because of a tight budget or tight money situation?
    A. If yes, how often do you feel that, and usually when do you feel that (beginning of the month/week, end of the month etc.)?
    B. When the money situation is tight, how do you manage the food supply for the whole family?
    C.What different things you do to stretch your food budget?

    Prompts:

    a. Gardening
    b. Sign up for food stamps/WIC
    c. Go to friends/neighbors for lunch or dinner
    d. Borrow money from friends/relatives
    e. Buy food on credit from small store owners
    f. Other things

30. A. What food dishes do you cook everyday or most days of the week?
    B. What food items are the main parts of the meal: meat, rice, curry, vegetables?
    C. What oil or fat do you use in cooking?
    D. What sauces and spices do you use in cooking?
    E. Can you tell me the recipe of one of your main dishes (like a meat or vegetable dish)?
    Prompt: What is the name of the dish, now first tell me all the ingredients and then tell me the steps.

Recipe Name and Ingredients list:

_____

_____

V. **DIFFERENCES IN LIFESTYLE AND EATING HABITS**

SCRIPT: I will ask you a few questions about your lifestyle before coming to the U.S.

25. A. How old were you when you came to the U.S.
B. Where did you live or where were you before coming to the U.S. (Note down: Both, name of the town or city and name of the country)?
C. How long did you live in that place?
D. What was your day like back in _____ (town name)? OR what was your daily routine
like in _____ (town name), OR tell me all the activities or things you did from
morning to night back in your country.
E. What were main daily activities: walking to market, school, housework, farm work etc.
F. Describe living conditions of that place or _____ (town name)

Prompts:

i. Rural vs. urban area
ii. Weather description
iii. Major occupation in that area
iv. What your family used to do: business; farm worker; fishing; teaching; factory worker
v. Houses: big vs. small
vi. Sources of drinking water
vii. Electricity
viii. Sewage/plumbing system

26. Tell me about your food habits back in your country OR before coming here?
Prompts:
   a. What was the main food?
   b. How many times did you used to eat per day?
   c. What was the main meal?
   d. Did you experience scarcity of food?
   e. What drinks you used to have?
   f. What dishes you used to cook commonly?
   g. How common was it to skip meals because of no food?

27. So, in comparison to your previous food habits (back in your country or refugee camp) how similar or different are your current food habits?
Prompts:
   a. What food habits are similar; why
   b. What food habits are different; why

c. Do you eat the same food as you used to eat back in your country?
d. What food items do you miss the most?
e. What food items can you get easily here?
f. How often do you or your children eat fast food (ex. McDonalds, Wendys, etc.)?
g. How many times per week do you or someone in this household cook at home?

28. What do you think about your current eating habits?
Prompts:
    a. Are they good, healthy, unhealthy? Why?
    b. Do you have any health concerns? What are these?
    c. How many times have you visited a doctor in the last year?
    d. How many times have your children visited the doctor in the last year?

VI. FOOD INSECURITY (validated USDA scale)

ADULT STAGE 1

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for your household in the past month or in past 30 days.

The first statement is "We worried whether our food would run out before we got money to buy more." Was that often true, sometimes true, or never true for your household in the last 30 days?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH3. "The food that we bought just didn't last, and we didn't have money to get more." Was that often, sometimes, or never true for your household in the last 30 days?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH4. "We couldn't afford to eat balanced meals." Was that <u>often</u>, <u>sometimes</u>, or <u>never</u> true for your household in the last 30 days? Give an example of balanced meal (such as: rice and meat, fish, chicken and vegetables stew).

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

<u>Screener for Stage 2 Adult-Referenced Questions:</u> If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, then continue to Adult Stage 2; otherwise, skip to Child Stage 1.

<u>ADULT STAGE 2</u>

AD1. In the last 30 days, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD1a. [IF YES ABOVE, ASK]. In the last 30 days, how many days did this happen?

___ days

[ ] DK

AD2. In the last 30 days, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD3. In the last 30 days, were you ever hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD4. In the last 30 days, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

Screener for Stage 3 Adult-Referenced Questions: If affirmative response to one or more of questions AD1 through AD4, then continue to Adult Stage 3; Otherwise skip to Child Stage 1..

ADULT STAGE 3

AD5. In the last 30 days, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD5a. [IF YES ABOVE, ASK]. In the last 30 days, how many days did this happen?

_____ days

[ ] DK

Transition into Child-Referenced Questions:
Now I'm going to read you several statements that people have made about the food situation of their children. For these statements, please tell me whether the statement was OFTEN true, SOMETIMES true, or NEVER true in the last one month for (your child/children) living in the household who are under 18 years old.

CHILD STAGE 1

CH1. "We relied on only a few kinds of low-cost food to feed (our child/the children) because we were running out of money to buy food." Was that often, sometimes, or never true for your household in the last 30 days?

[ ] Often true
[ ] Sometimes true
[ ] Never true

[ ] DK or Refused

CH2. “We couldn’t feed (our child/the children) a balanced meal, because we couldn’t afford that.” Was that often, sometimes, or never true for your household in the last 30 days? Give an example of balanced meal (such as: rice and meat, fish, chicken and vegetables stew).

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

CH3. "(Our child was/The children were) not eating enough because we just couldn't afford enough food." Was that often, sometimes, or never true for your household in the last 30 days?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

Screener for Stage 2 Child Referenced Questions: ***If affirmative response (i.e., "often true" or "sometimes true") to one or more of questions CH1-CH3, then continue to Child Stage 2; otherwise skip to End of Food Security Module***

CHILD STAGE 2

CH4.In the last 30 days, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

CH5.In the last 30 days, did (your child/any of the children) ever skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

CH5a. [IF YES ABOVE, ASK]. In the last 30 days, how many days did this happen?

_____ days

[ ] DK

CH6. In the last 30 days, (was your child/were the children) ever hungry but you just couldn't afford more food?

[ ] Yes
[ ] No
[ ] DK

CH7. In the last 30 days, did (your child/any of the children) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

END OF FOOD SECURITY MODULE

Thank you for your time and efforts. We really appreciate your input. Do you have any questions for me.